REQUEST FORM FOR
APPLICATION UNDER 37 CFR 1.53(b)

DOCKET NUMBER: **50253-148 (P1623C)**
Prior Application:
     Art Unit: 2774
     Examiner: X. Wu

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

This is a Request for filing a **Continuation** application under 37 CFR 1.53(b) of pending prior

application Serial No. 08/674,491, filed on July 1, 1996, entitled **LINEAR TOUCH INPUT DEVICE**, by the

following named inventor(s): Bruce TOGNAZZINI.

1. ☒   I hereby state that the enclosed copy of this prior application is a true copy of the above-identified prior
     application.

2. Oath or Declaration
     a.   ☐   Newly executed (original or copy)
     b.   ☒   Copy from a prior application (37 CFR 1.63(d))
        i.   ☐   <u>Deletion of inventor(s)</u>
               Signed statement attached deleting inventor(s) named in the prior application, see 37
               CFR 1.63(d)(2) and 1.33(b).

3. ☒   Incorporation By Reference (useable if Box 2b is checked)
     The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied
     under Box 2b, is considered as being part of the disclosure of the accompanying application and is hereby
     incorporated by reference therein.

4. ☒   Preliminary Amendment is enclosed.

5. ☒   An Information Disclosure Statement and PTO1449 Form are submitted herewith.

6. ☒   Cancel claims <u>3 and 18-21</u>.

1

7. The filing fee is calculated on the basis of the claims existing in the prior application as amended at 4 and 6 above:

	NO. OF CLAIMS		EXTRA CLAIMS	RATE	AMOUNT
Total Claims	37	-20	17	$22.00 =	$374.00
Independent Claims	4	-3	1	$82.00 =	$82.00
Basic Application Fee					$790.00
If multiple dependent claims are presented, add $0.00					$0.00
Total Application Fee					$1246.00
Subtract ½ if small entity					$0.00
TOTAL APPLICATION FEE DUE					$1246.00
AMOUNT TO BE CHARGED TO DEPOSIT ACCOUNT NO. 500417					$1246.00

7a. ☐ Enclosed is a Verified Statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27.

7b. ☐ A verified Statement to establish small entity status under 37 CFR 1.9 and 37 CFR 1.27 was filed in prior application and such status is still proper and desired.

8. ☒ The Commissioner is hereby authorized charge the fee of $1246.00 and any additional fees under 37 CFR 1.16 and 1.17 which may be required, including any extension of time fees to maintain the pendency of the parent application Serial No. 08/674,491 or credit any overpayment to Deposit Account No. 500417.

9. ☒ Amend the specification by inserting before the first line the sentence:

--This application is a continuation of Application Serial No. 08/674,491 filed July 1, 1996.--

10. ☐ Priority of Application Serial No. filed on , in is claimed under 35 USC 119. The certified priority document(s) were filed in Serial No. 08/674,491 on .

11. ☒ The prior application is assigned of record to

Sun Microsystems, Inc.
Mountain View, CA

12. ☒ The power of attorney in the prior application is to:

McDermott, Will & Emery, formerly Lowe, Price, LeBlanc & Becker

13. ☒ Also enclosed:

Correspondence Address Change

14. ☐   A petition, fee and response has been filed to extend the term in the pending prior application until .

Address all future communications to: (May only be completed by applicant, or attorney or agent of record)

<div align="center">

McDermott, Will & Emery
99 Canal Center Plaza, Suite 300
Alexandria, VA 22314

Respectfully submitted,

MCDERMOTT, WILL & EMERY

David L. Stewart
Registration No. 37,578

</div>

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Alexandria, Virginia 22314
(202) 756-8600 DLS:amz
Date: September 15, 1998
Facsimile: (202) 756-8699

Docket No.: <u>50253-148</u>   <u>PATENT</u>

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of   :
                                        :
Bruce TOGNAZZINI   :
                                        :
Rule 53(b) Continuation of   :   Expected
Serial No. 08/674,491   :   Group Art Unit: 2774
                                        :
                                        :   Expected
Filed: September 15, 1998   :   Examiner: X. Wu
                                        :
For: LINEAR TOUCH INPUT DEVICE

PRELIMINARY AMENDMENT

Honorable Commissioner of
   Patents and Trademarks
Washington, D.C. 20231

Sir:

Prior to examination of this Rule 53(b) Continuation Application, please amend the application as follows:

IN THE SPECIFICATION:

Please amend the specification as follows:

Page 7, line 2, change "charge" to --change--.

IN THE CLAIMS:

Please cancel claims 3 and 18-21 as indicated on the Rule 53(b) Continuation Application Transmittal Sheet.

1

Rule 53(b) Continuation
of Serial No. 08/674,491

Please amend claims 1, 7, 13, 14, 17, 22, 23, 25 and 29 as follows:

1. (Amended) An input device for providing user controlled inputs, comprising:

a strip of [touch sensitive] touch-sensitive material sensitive to a range of pressure values, said strip having a substantially constant width and a length which is at least twice said width; and

an interface, connecting said strip to a computer and responsive to human contact with said strip in order to transpose the position and pressure value of said contact into a data signal [indicting the position of said contact along the length of said strip] and to output said data signal.

7. (Amended) A keyboard having an integrated touch input device, said keyboard comprising;

a housing supporting a plurality of keys, said housing having a top face [side], a bottom face [side], and left and right edges [sides]; and

a first linear touch input device for providing user controlled inputs, said linear touch input device located adjacent to at least one of said left and right edges on said top face and comprising:

2

a strip of touch sensitive material, said strip having a substantially constant width and a length which is at least twice said width; and

an interface, connecting said strip to a computer and responsive to human contact with said strip in order to transpose the position of said contact into a data signal indicating the position of said contact along the length of said strip and to output said data signal.

13. (Amended) A keyboard according to claim 12, wherein said strip of touch sensitive material is located on the top [side] face of said housing and said touch keys or buttons are located on at least one of said left [side] edge and said right edge of said housing.

14. (Amended) A keyboard according to claim 12, wherein said strip of touch sensitive material is located on the top [side] face of said housing and said touch keys or buttons are located on the bottom [side] face of said housing.

17. (Amended) A keyboard according to claim 7, further comprising a second linear touch input device and wherein said first linear input device is located at or near said left [side]

edge of the keyboard and said second linear touch input device is
located at [onr] or near said right [side] edge of the keyboard.

22. (Amended) A computer system comprising:

a computer bus;

a linear touch input device for providing user controlled
inputs to said bus, said liner touch input device comprising:

a strip of touch sensitive material, said strip having a
substantially constant width and a length which is at least
twice said width, and

an interface, connecting said strip to said computer bus
and responsive to human contact with said strip in order to
transpose the position of said contact into an input data
signal indicating the position of said contact along the
length of said strip and to output said data signal to said
computer bus; and

a processor configured to receive the input data signal from
said linear touch input device and process information in
accordance with said input data signal; and

a keyboard having a plurality of alphanumeric keys and
outputting a keyboard signal indicating the selection of said
alphanumeric keys by a user, said linear touch input device being
integrated with said keyboard, and said processor performs

processing of display data in response to said keyboard signal and
said input data signal from said linear touch input device.

23. (Amended)   A computer system according to claim 22,
wherein said computer system further comprises a display arranged
to display [an] said image display data under the control of said
processor and said processor controls said image display data in
accordance with said input data signal.

25. (Amended)   A computer system according to claim [24] 22,
wherein said image display data represents a text document and said
computer system [further comprises a keyboard having a plurality of
alphanumeric keys and outputting a keyboard signal indicating the
selection of said alphanumeric keys by a user, said linear touch
input device being integrated with said keyboard, and said
processor operates in accordance with programming stored on a
computer readable storage medium to perform] performs processing of
[a] said text document in accordance with said keyboard signal and
[to control a] display of said text document in accordance with
said input data signal from said linear touch input device.

29. (Amended)   A computer program product for implementing a
method for providing user controlled inputs to a computer
comprising:

a computer readable memory medium[:]; and

a computer program including

a routine for, in response to human contact of a strip of touch sensitive material by hand, converting the position of said contact into a data signal indicating the position of said contact along the length of said strip; and

a routine for outputting said data signal to a bus of said computer, wherein said computer comprises a keyboard having a plurality of alphanumeric keys and outputting a keyboard signal indicating the selection of said alphanumeric keys by a user, said strip being integrated with said keyboard, and said processor performs processing of display data in accordance with said keyboard signal and said input data signal from said strip.

Please add new claims 35-42 as follows:

-- 35. A keyboard according to claim 7, wherein said linear touch sensitive material has a longitudinal direction and said longitudinal direction is substantially parallel to at least one said left and right edges.--

-- 36. A keyboard according to claim 17 wherein said second linear touch input device used in conjunction with said first linear touch input device for generating a two-dimensional input signal.--

-- 37. A keyboard according to claim 11, wherein selection of said touch keys or buttons modifies a granularity of movement controlled by said strip of touch sensitive material.--

-- 38. An input device according to claim 1 further comprising a second strip of touch sensitive material, wherein said first and a second strips of touch sensitive material control input in one dimension.--

-- 39. An input device according to claim 38 wherein said first and second strips of touch sensitive material in combination control two-dimensional input.--

-- 40. An input device according to claim 38 wherein one of said first and second touch sensitive input strips controls granularity of the other of said first and second touch sensitive input strips.--

-- 41. An input device according to claim 38 further comprising at least one key that when activated simultaneous to activation of either touch sensitive input strip controls granularity of input.--

7

--   42.   An input device according to claim 38 further comprising

at least one key that when activated simultaneous to activation of

said first touch sensitive input strip controls selection of a

function altered in one dimension by said first touch sensitive

input strip.--

REMARKS

This Preliminary Amendment is being filed concurrently with a

Rule 53(b) Continuation Application.   By this Preliminary

Amendment, the specification has been amended to correct a minor

typographical error, claims 1, 7, 13, 14, 17, 22, 23, 25 and 29

have been amended to reflect amendments made in the parent

application, claims 3 and 20 have been cancelled, and new claims

35-42 added.   Please note claims 18, 19 and 21 have been cancelled

as they will result in an issued patent of parent application

Serial No. 08/674,491.   Entry of this Preliminary Amendment is

respectfully requested.

Please charge any shortage in fees due in connection with the

filing of this paper, including extension of time fees, to Deposit

Rule 53(b) Continuation
of Serial No. 08/674,491

Account 500417 and please credit any excess fees to such deposit
account.

<div style="text-align: right">

Respectfully submitted,

McDERMOTT, WILL & EMERY

David L. Stewart
Registration No. 37,578

</div>

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Facsimile: 202-756-8699
Date: September 15, 1998

Docket No.: <u>50253-148 (P1623C)</u>   **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:
	:
Bruce TOGNAZZINI	:
	:
Rule 53(b) Continuation of	: Expected
Serial No.: 08/674,491	: Group Art Unit: 2774
	:
	: Expected
Filed: September 15, 1998	: Examiner: X. Wu
	:
For: LINEAR TOUCH INPUT DEVICE	:

Honorable Commissioner of
 Patents and Trademarks
Washington, D. C. 20231

<u>CORRESPONDENCE ADDRESS CHANGE</u>

Sir:

Please change the records to indicate the current firm name and telephone number for the

above-identified application and forward all future correspondence as follows:

<div align="center">

McDERMOTT, WILL & EMERY
99 Canal Center Plaza, Suite 300
Alexandria, Virginia 22314
202-756-8600

Respectfully submitted,

MCDERMOTT, WILL & EMERY

David L. Stewart
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APPLICATION FOR UNITED STATES LETTERS PATENT FOR

LINEAR TOUCH INPUT DEVICE

INVENTOR:

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2860-037

P1623

LINEAR TOUCH INPUT DEVICE

BACKGROUND OF THE INVENTION

Field of the Invention

The invention relates generally to user input devices. More particularly, the present invention relates to a simple computer touch input device providing input information corresponding to position and pressure.

Description of the Related Art

Conventional input devices are inefficient and require a user to utilize skill and dexterity in order to operate. In particular, keyboards require a modicum of typing skills and fine-motor devices such as miniature trackballs and the IBM trackpoint (pencil-eraser-look-alike) device are difficult to use and may be impossible or uncomfortable for people with slight disabilities.

Even simple devices tend to have disadvantages. For example, a mouse can be used to point to and click on items displayed on a screen. The mouse is typically restricted to operate merely as a pointing device, with the user moving the mouse with the right hand and either doing nothing with the left hand or pressing a small number of modifier keys. The non-dominant hand (typically the left hand) is underutilized during graphical interaction with the

display of a computer screen. Unfortunately, using two mice simultaneously requires an unusually high level of both manual and cognitive dexterity.

Other pointing devices, such as pressure-sensitive touch tablets, also require a certain degree of manual and cognitive dexterity and can be disadvantagous for the further reason that they are bulky and relatively expensive. In particular, three-dimensional input devices, such as flying mouses which are intended to be lifted off of the table to indicate a position in the Z-axis are difficult to use.

Consequently, there is a need for an input device which is easier for users to use than a mouse, has a predictable and close location, and is easier to manipulate, especially when inputting three-dimension position data.

SUMMARY OF THE INVENTION

The present invention provides an input device which allows information to be input to a device through a simple operation. A key feature of the input device is that a user operates the device by touching it with his or her finger and varies the input by changing the location and the pressure of his or her finger.

In accordance with a preferred embodiment of the invention, the input device is comprised of a strip of pressure sensitive material of approximately the width of a human finger. The strip is sensitive to detect contact in only one direction and not in any

other direction, such as from left to right. The strip is preferably made an integral part of the left and/or right side of a keyboard. It is thus easy to access and manipulate due to its predictable location and its compact and simple design.

The advantages and novel features of the present invention will become apparent to those skilled in the art from this disclosure, including the following detailed description, as well as by practice of the invention. While the invention is described below with reference to preferred embodiments, it should be understood that the invention is not limited thereto. Those of ordinary skill in the art having access to the teachings herein will recognize additional applications, modifications and embodiments in the same or other fields, which are within the scope of the invention as disclosed and claimed herein and with respect to which the invention could be of significant utility.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an illustrative view of part of the top of a keyboard incorporating a linear touch input device in accordance with a first embodiment of the present invention.

Figure 2 is an illustrative view of part of the top of a keyboard incorporating a linear touch input device in accordance with a second embodiment of the present invention.

Figure 3 is a view of part of the bottom of a keyboard incorporating a linear touch input device in accordance with a

second embodiment of the present invention.

Figure 4 is an illustrative cut-away view of a keyboard incorporating a linear touch input device in accordance with a third embodiment of the present invention.

Figure 5 is a view of the simultaneous implementation of two linear touch input devices in a keyboard in accordance with the present invention.

Figure 6 is a block diagram of an information processing system connected with a linear touch input device according to the present invention.

NOTATION AND NOMENCLATURES

The detailed descriptions which follow may be presented in terms of program procedures executed on a computer or network of computers. These procedural descriptions and representations are the means used by those skilled in the art to most effectively convey the substance of their work to others skilled in the art.

A procedure is here, and generally, conceived to be a self-consistent sequence of steps leading to a desired result. These steps are those requiring physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated. It proves convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements,

symbols, characters, terms, numbers, or the like. It should be noted, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities.

Further, the manipulations performed are often referred to in terms, such as adding or comparing, which are commonly associated with mental operations performed by a human operator. No such capability of a human operator is necessary, or desirable in most cases, in any of the operations described herein which form part of the present invention; the operations are machine operations. Useful machines for performing the operation of the present invention include general purpose digital computers or similar devices.

The present invention also relates to apparatus for performing these operations. This apparatus may be specially constructed for the required purpose, such as a graphics workstation, or it may comprise a general purpose computer as selectively activated or reconfigured by a computer program stored in the computer. The procedures presented herein are not inherently related to a particular computer or other apparatus. Various general purpose machines may be used with programs written in accordance with the teachings herein, or it may prove more convenient to construct more specialized apparatus to perform the required method steps. The required structure for a variety of these machines will appear from the description given.

June 23, 1996   2860-037;P1623

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

One embodiment of the linear touch input device in accordance with the invention will now be described with reference to **Figure 1**. As shown in **Fig. 1**, a straight strip of sensitive material **101** is mounted on the left side of a keyboard **100** roughly parallel to the left edge of keyboard **100**. Keyboard **100** may be physically separated from, yet connected to, a desktop personal computer or workstation or it may be an integrated part of a system such as a portable computer. The strip of sensitive material **101** preferably has a width of about one centimeter (approximately the width of a human finger) and a length of about four centimeters. Contact and pressure sensitive materials suitable for implementing the strip are well known in the art. Strip **101** is located a short distance from the left edge of keyboard **100** so as to allow the natural placement of a user's thumb thereon when the user's hand is on the left end of keyboard **100**, thus affording the user easy access. Strip **101** extends in the vertical direction, with no perpendicular left to right movement.

In its simplest implementation, the input device detects only the vertical position of a finger on strip **101** and interface circuitry converts the vertical position into a signal representing a number corresponding to the vertical position, which signal is then supplied to an information processing system, such as a computer or workstation. In a more sophisticated implementation, the input device also detects the user's level of pressure on strip

101 in a manner known in the art, thereby adding an additional dimension to the input data without requiring the user to charge positions to activate another sensor.

As shown in **Fig. 1**, the first embodiment of the linear touch input device also has a number (preferably four) of keys 102_1 to 102_N at fixed locations on the left side of keyboard 100, in a location enabling the user to naturally slide his or her thumb up and down strip 101 while pressing any combination of the keys 102_1 to 102_N. The keys are preferably used to enable the user to modify an attribute of the output of the linear touch input device or another input device, such as a mouse, while simultaneously using the linear touch input device. The effect of the keys may be fixed and determined by hardware within the linear touch input device itself or the effect of the keys may be variably determined by software within the information processing system to which the linear touch input device is connected. Specific examples of the possible uses of keys 102_1 to 102_N in computer or workstation applications are provided and described in further detail below.

As shown in **Fig. 2**, a second embodiment of the invention also has a strip of sensitive material 101 mounted on the left side of a keyboard 100 roughly parallel to the left edge of keyboard 100. Again, the strip of sensitive material 101 preferably has a width of about one centimeter (approximately the width of a human finger) and a length of about four centimeters and is linear in the vertical direction, with no perpendicular left to right movement.

As in the first embodiment, the input device may either detect only the vertical position of a finger on strip 101 or it may also detect the user's level of pressure on strip 101. In either case, the device translates the position and/or pressure into a number(s)
5   which is then supplied to an information processing system such as a computer or workstation.

However, as shown in **Fig. 3**, the second embodiment differs from the first embodiment insofar as the plurality of keys 102_1 to 102_N (N preferably equal to four) are at fixed locations on the
10 bottom of keyboard 100 rather than on the side. Strip 101 is again located a short distance from the left edge of keyboard 100 so as to allow the natural placement of a user's thumb thereon. But since, in the second embodiment, the user will grasp or cup the left end of keyboard 100, the strip 101 is preferably located
15 slightly higher and closer to the left edge of keyboard 100 in the second embodiment than in the first embodiment.

As shown in **Fig. 4**, a third embodiment is substantially similar to the second embodiment except that strip 101 is formed in a arc shape rather than in a straight line. The position and
20 radius of curvature of strip 101 is such that a user's thumb falls naturally over the entire length of the strip.

As shown in **Fig. 5**, two linear touch input devices 101_A and 101_B may be implemented simultaneously on the left and right sides of the keyboard 100. The two input devices, flanking either side
25 of the keyboard, may replace the mouse or other conventional

pointing device entirely. Such an integrated keyboard and pointing device offers the advantage of a gross-motor device while being compact and mechanically simple.

The linear touch input devices are preferably used with an information processing system such as a computer shown in Fig. 4. As shown in **Figure 6**, the computer has a central processing unit (CPU) **600** operatively connected to memory devices **610A** and **610B**, namely read-only memory (ROM) **610a** and random access memory (RAM) **610b**. ROM memory **610a** typically stores BIOS and operating system like information. Programming which instructs the CPU **600** to operate in accordance with the present invention as will be described in detail below may be stored in ROM or RAM. Data and information received or generated by the CPU **600** can be preferably stored in RAM **610b**. Memory devices such as hard drive **672** or floppy disk drive **673**, SRAM, DRAM, etc., could be utilized in addition, as is well understood by those of skill in the art. The CPU **600** is also operatively connected to a linear touch input device **420** as described above. Optionally, the CPU **600** may also be connected to a key pad, dial, mouse or virtually any other device **610** which would facilitate the input of data, of the type described below, by a user to the CPU **600**.

It is to be understood that the elements of the system must be programmed to perform a variety of different operations or applications utilizing the input data. In particular, CPU **600** contains driver software for the linear touch input device or

operates in accordance with such driver software contained within ROM or RAM of the computer. The CPU 600 also may process the input data received from the linear touch input device according to applications programming contained within the computer. Data and programming information used to implement the invention may be carried in a memory medium such as a floppy disk and loaded into a computer for execution.

Depending on the applications programmed into the computer, the linear touch input device could be used as a speed control, volume control, scaling control (including, but not limited to, scaling control of a second pointing device), etc. For example, users could scroll up and down in a text document using the linear touch input device while simultaneously seeking the word they were looking for using the keyboard or other input device. Of course, the uses of the linear touch input device are not restricted to those specifically described in this application.

As a preferred application, a linear touch input device in accordance with the invention is used in order to easily perform two-handed three-dimensional input, simultaneously using the mouse for conventional X-Y positioning and the linear device for movement in the Z axis.

In this disclosure, there is shown and described only the preferred embodiment of the invention, but, as aforementioned, it is to be understood that the invention is capable of use in various other combinations and environments and is capable of changes or

June 23, 1996   2860-037;P1623

modifications within the scope of the inventive concept as expressed herein.

2860-037;P1623

CLAIMS

WHAT IS CLAIMED:

1.   An input device for providing user controlled inputs, comprising:

a strip of touch sensitive material, said strip having a substantially constant width and a length which is at least twice said width; and

an interface, connecting said strip to a computer and responsive to human contact with said strip in order to tranpose the position of said contact into a data signal indicating the position of said contact along the length of said strip and to output said data signal.

2.   An input device according to claim 1, wherein said interface does not transpose the widthwise position of said contact and said data signal does not indicate the widthwise position of said contact.

3.   An input device according to claim 1, wherein said interface also transposes the pressure of said contact and said data signal also indicates the pressure of said contact.

4.   An input device according to claim 1, wherein said

June 23, 1996   2860-037;P1623

substantially constant width is approximately the width of a human finger.

5. An input device according to claim 4, wherein said input device further comprises a number of keys or buttons and wherein said data signal also indicates the selection of one or more of said keys or buttons.

6. An input device according to claim 5, wherein said number of keys or buttons is four and wherein said keys or buttons are located on said linear touch input device in a position so as to be operable by the fingers of a hand while said strip of touch sensitive material is simultaneously touched by the thumb of the hand.

7. A keyboard having an integrated touch input device, said keyboard comprising:

a housing supporting a plurality of keys, said housing having a top side, a bottom side, and left and right sides; and

a linear touch input device for providing user controlled inputs, said linear touch input device comprising:

a strip of touch sensitive material, said strip having a substantially constant width and a length which is at least twice said width; and

an interface, connecting said strip to a computer and

responsive to human contact with said strip in order to tranpose the position of said contact into a data signal indicating the position of said contact along the length of said strip and to output said data signal.

8. A keyboard according to claim 7, wherein said interface does not transpose the widthwise position of said contact and said data signal does not indicate the widthwise position of said contact.

9. A keyboard according to claim 7, wherein said interface also transposes the pressure of said contact and said data signal also indicates the pressure of said contact.

10. A keyboard according to claim 7, wherein said substantially constant width is approximately the width of a human finger.

11. A keyboard according to claim 10, wherein said linear touch input device further comprises a number of touch keys or buttons and wherein said data signal also indicates the selection of one or more of said touch keys or buttons.

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12. A keyboard according to claim 11, wherein said keys or buttons and said strip of touch sensitive material are located on

said linear touch input device in a position so as to be operable
by the fingers of a hand while said strip of touch sensitive
material is simultaneously touched by the thumb of the hand.

13.   A keyboard according to claim 12, wherein said strip of
touch sensitive material is located on the top side of said housing
and said touch keys or buttons are located on said left side of
said housing.

14.   A keyboard according to claim 12, wherein said strip of
touch sensitive material is located on the top side of said housing
and said touch keys or buttons are located on the bottom side of
said housing.

15.   A keyboard according to claim 12, wherein said strip of
touch sensitive material is substantially straight.

16.   A keyboard according to claim 12, wherein said strip of
touch sensitive material is substantially arc shaped.

17.   A keyboard according to claim 7, further comprising a
second linear touch input device and wherein said first linear
input device is located at or near said left side of the keyboard
and said second linear touch input device is located at onr near
said right side of the keyboard.

18. A method of providing user controlled inputs to a computer, the method comprising the steps of:

contacting a strip of touch sensitive material by hand; and

in response to said contact, converting the position of said contact into a data signal indicating the position of said contact along the length of said strip; and

outputting said data signal to a bus of said computer.

19. A method according to claim 18, wherein said step of transposing includes transposing the pressure of said contact and wherein said data signal also indicates the pressure of said contact.

20. A method according to claim 18, wherein said method comprises the further step of selecting one or more touch keys or buttons simultaneously with said step of contacting said strip of touch sensitive material and wherein said data signal also indicates the selection of one or more of said touch keys or buttons.

21. A method according to claim 20, wherein said touch keys or buttons are selected by the fingers of a hand while said strip of touch sensitive material is contacted by the thumb of the hand.

22. A computer system comprising:

a computer bus;.

a linear touch input device for providing user controlled inputs to said bus, said linear touch input device comprising:

a strip of touch sensitive material, said strip having a substantially constant width and a length which is at least twice said width, and

an interface, connecting said strip to said computer bus and responsive to human contact with said strip in order to tranpose the position of said contact into an input data signal indicating the position of said contact along the length of said strip and to output said data signal to said computer bus; and

a processor configured to receive the input data signal from said linear touch input device and process information in accordance with said input data signal.

23. A computer system according to claim 22, wherein said computer system further comprises a display arranged to display an image under the control of said processor and said processor controls said image in accordance with said input data signal.

24. A computer system according to claim 23, wherein said processor controls scrolling of said display in accordance with said input data signal.

25. A computer system according to claim 24, wherein said computer system further comprises a keyboard having a plurality of alphanumeric keys and outputting a keyboard signal indicating the selection of said alphanumeric keys by a user, said linear touch input device is integrated with said keyboard, and said processor operates in accordance with programming stored on a computer readable storage medium to perform processing of a text document in accordance with said keyboard signal and to control a display of said text document in accordance with said input data signal from said linear touch input device.

26. A computer system according to claim 23, wherein said computer system further comprises a pointing device and wherein said processor controls said image in accordance with said input data signal from said linear touch input device and a signal from said pointing device.

27. A computer system according to claim 26, wherein said pointing device comprises a two-dimensional pointing device and said processor processes the signal from said two-dimensional pointing device with said input data signal from said linear touch input device under the control of programming instructions to generate a three-dimensional input signal.

28. A computer system according to claim 22, wherein said

computer system further comprises a network and one or more computers, each containing said linear touch input device, connected to said network.

29. A computer program product for implementing a method of providing user controlled inputs to a computer comprising:

a computer readable memory medium: and

a computer program including

a routine for, in response to human contact of a strip of touch sensitive material by hand, converting the position of said contact into a data signal indicating the position of said contact along the length of said strip; and

a routine for outputting said data signal to a bus of said computer.

30. A computer program product according to claim 29, wherein said computer program is arranged to control the display of an image in accordance with said input data signal.

31. A computer program product according to claim 30, wherein said computer program controls scrolling of said display in accordance with said input data signal.

June 23, 1996   2860-037;P1623

32. A computer program product according to claim 31, wherein said computer comprises a keyboard having a plurality of alphanumeric keys and outputting a keyboard signal indicating the selection of said alphanumeric keys by a user, said strip of touch sensitive material is integrated with said keyboard, and said computer program performs processing of a text document in accordance with said keyboard signal and to control a display of said text document in accordance with said input data signal.

33. A computer system according to claim 30, wherein said computer comprises a pointing device and wherein said computer program controls said image in accordance with said input data signal and a signal from said pointing device.

34. A computer system according to claim 33, wherein said pointing device comprises a two-dimensional pointing device and computer program includes a routine for processing the signal from said two-dimensional pointing device with said input data signal to generate a three-dimensional input signal.

LINEAR TOUCH INPUT DEVICE

Abstract of the Disclosure

A keyboard contains an input device comprising a linear strip of sensitive material the approximate width of the human finger

5 integrated into the left or right side of the keyboard. The strip is linearly sensitive in only one direction and not to any other direction, such as from left to right. A user operates the device by touching it with his or her finger and varies the input by changing the position along the strip and the pressure of his or
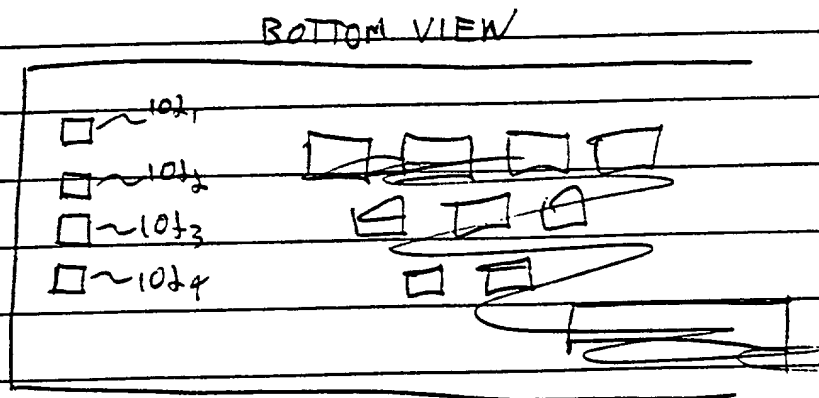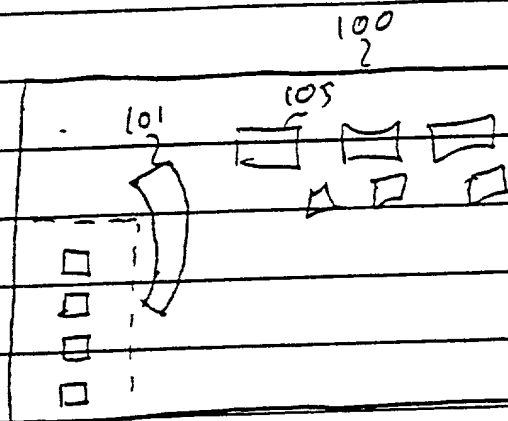
10 her finger.

3

101   100

105

102_1

102_2

102_3

102_4

FIG. 1

101   TOP VIEW   100

105

FIG. 2

BOTTOM VIEW

102_1

102_2

102_3

102_4

FIG. 3

100

105

101

FIG. 4

100

101A   105   101B

FIG. 5

LINEAR
TOUCH
INPUT
DEVICE

620

610

690

DISPLAY

600

CPU

INTERFACE

OPTIONAL
INPUT
DEVICE

675

DISPLAY
INTERFACE

650

645

670

610A

610B

DISK
CONTROLLER

ROM
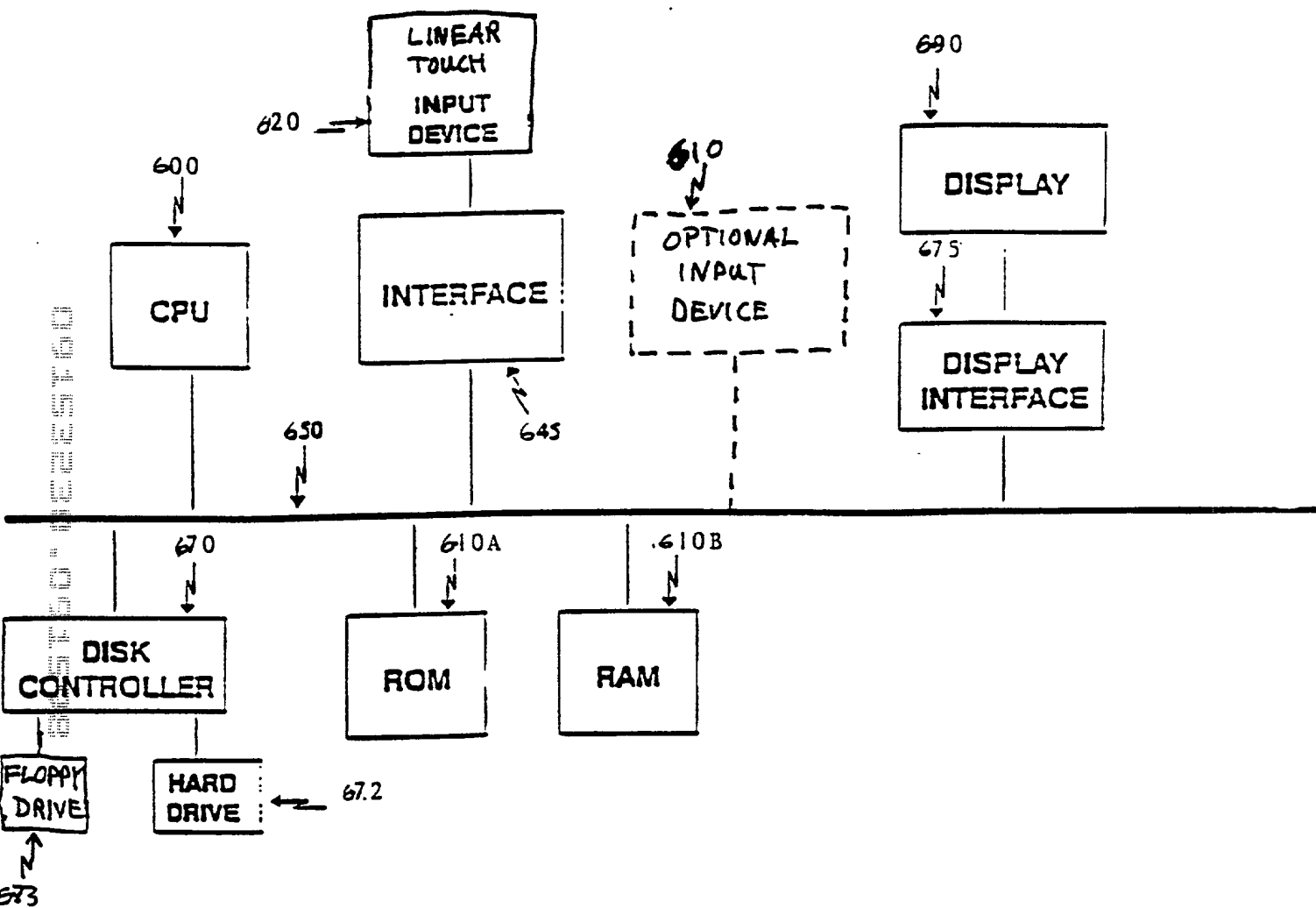
RAM

FLOPPY
DRIVE

HARD
DRIVE

67.2

673
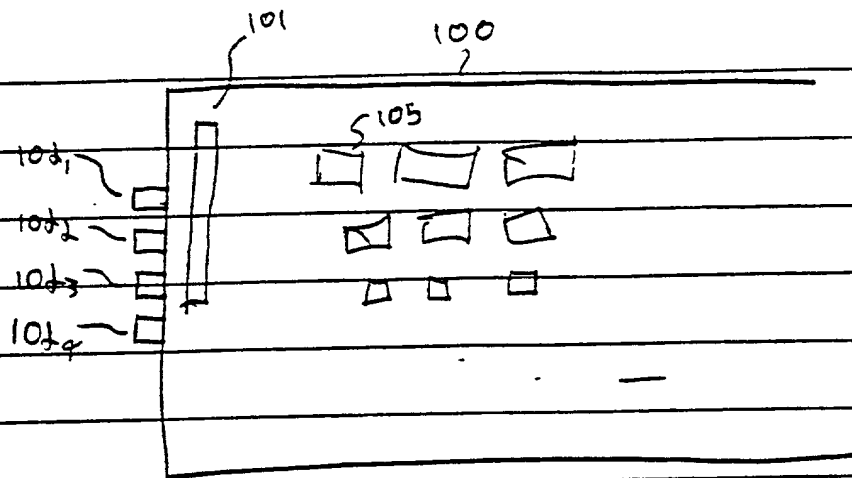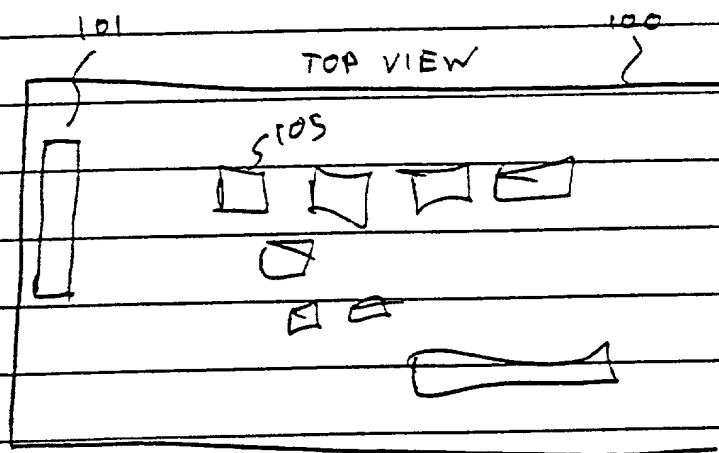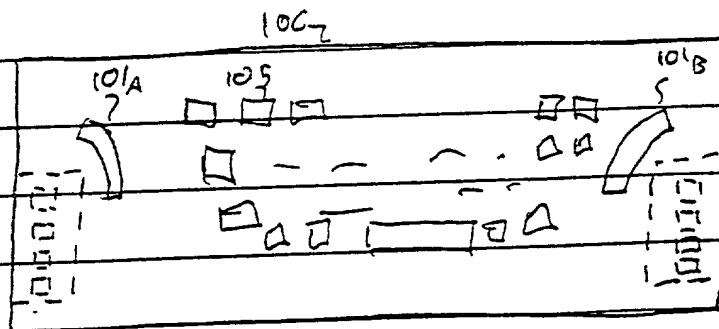
F I G U R E 6

Docket No.: 2860-037

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter claimed and for which a patent is sought on the invention entitled **LINEAR TOUCH INPUT DEVICE**, the specification of which

[x] is attached hereto   [ ] was filed on as Application Serial No. and was amended on (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is known to me to be material to patentability in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s):			Priority Claimed	
Number	**Country**	**Day/Month/Year filed**	**Yes**	**No**

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Prior U. S. Application(s):		
Serial No.	**Filing Date**	**Status: Patented, Pending, Abandoned**

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following attorney(s) and/or agent(s): Allan M. Lowe, Reg. No. 19,641; Robert L. Price, Reg. No. 22,685; Robert E. LeBlanc, Reg. No. 17,219; Stephen A. Becker, Reg. No. 26,527; Henry Shur, Reg. No. 17,414; Israel Gopstein, Reg. No. 27,333; Benjamin J. Hauptman, Reg. No. 29,310; Kenneth E. Krosin, Reg. No. 25,735; Gilberto M. Villacorta, Reg. No. 34,038; Chittaranjan N. Nirmel, Reg. No. 30,408; Gene Z. Rubinson, Reg. No. 33,351; Frank P. Presta; Reg. No. 19,828; Keith E. George, Reg. No. 34,111; Edward J. Wise, Reg. No. 34,523; Christopher W. Brody, Reg. No. 33,613; Demetra J. Mills, Reg. No. 34,506; Daniel Y.J. Kim, Reg. No. 36,186; Alexander Yampolsky, Reg. No. 36,324; Alfred A. Stadnicki, Reg. No. 30,226; David L. Stewart, Reg. No. 37,578; Timothy R. DeWitt, Reg. No. 35,857; Arthur J. Steiner, Reg. No. 26,106; William H. Beha, Reg. No. 38,038; Irah H. Donner, Reg. No. 35,120; Eric J. Kraus, Reg. No. 36,190; Irving R. Pellman, Reg. No. 38,737; Leon R. Turkevich, Reg. No. 34,035; John A. Hankins, Reg. No. 32,029; Linda T. Jaron, Reg. No. 33,914; Robert M. Bauer, Reg. No. 34,487; Mark G. Toohey, Reg. No. 35,392; and Michael E. McCabe, Jr., Reg. No. 37,182 all of

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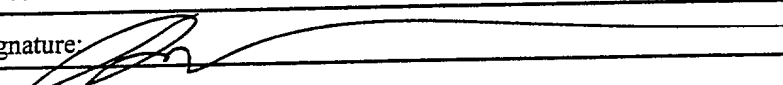Alexandria, Virginia 22314

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with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and all future correspondence should be addressed to LOWE, PRICE, LEBLANC & BECKER.

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